

### Happy and mindless? Moods and the processing of persuasive communications

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Veröffentlichungsversion / Published Version  
Forschungsbericht / research report

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#### Empfohlene Zitierung / Suggested Citation:

Bless, H., Schwarz, N., Strack, F., & Böhner, G. (1989). *Happy and mindless? Moods and the processing of persuasive communications*. (ZUMA-Arbeitsbericht, 1989/05). Mannheim: Zentrum für Umfragen, Methoden und Analysen - ZUMA-. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-66898>

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Happy and Mindless?  
Mood and the Processing of  
Persuasive Communications

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ZUMA-Arbeitsbericht Nr. 89/05

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Happy and Mindless?  
Moods and the Processing of Persuasive Communications

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### Abstract

Two experiments on the impact of happy and sad moods on the processing of persuasive communications are reported and their implications for various models of affect and cognition are discussed. In Experiment 1, happy or sad subjects were exposed to a counter-attitudinal communication that presented strong or weak arguments and were or were not explicitly instructed to focus on the content of the message. Subjects in a bad mood were influenced by strong but not by weak arguments under both focus conditions. Subjects in a good mood, on the other hand, were equally persuaded by strong and by weak arguments, unless they were explicitly instructed to focus on the content of the message. In the latter case, only strong arguments were persuasive, suggesting that being in a bad mood or being instructed to pay attention to the content of the message are functionally equivalent. An analysis of subjects' cognitive responses revealed a parallel pattern, suggesting that the interaction of mood and argument quality is due to the impact of moods on subjects' cognitive elaboration of the message. Additional analyses revealed that depressive subjects' (mean BDI-score = 18.9) processing of the messages parallels the findings for subjects in an induced bad mood. Experiment 2 replicated the findings of the first study and provided an experimental test of the hypothesis that subjects' mood state affects message elaboration. Specifically, working on a distractor task during exposure to the message eliminated the advantage of strong over weak arguments under bad mood

conditions. Subjects in a good mood, on the other hand, were not affected by a distracting task, suggesting that they did not use a central route of persuasion to begin with. We conclude that subjects' moods affect their processing strategy and that subjects in a good mood are less likely to engage in message elaboration than subjects in a bad mood.

### Happy and Mindless ?

#### Moods and the Processing of Persuasive Communications

Attempts to persuade another person are often accompanied by efforts to change the other's mood state. In advertising, political campaigns, and informal social encounters, efforts to make the recipient feel good often precede the actual persuasion attempt. The frequent use of this persuasion strategy, and practitioners' faith in it, suggest that it may actually be effective. However, the exact mechanisms by which recipients' affective states mediate persuasion processes are not yet understood.

In the present paper, we explore the impact of happy and sad moods on the processing of counterattitudinal communications in the context of a cognitive response approach to persuasion and attitude change ( Petty, Ostrom, & Brock, 1981). According to Petty and Cacioppo's (1986 a, b) elaboration likelihood model of persuasion, recipients of a persuasive communication may either elaborate the content of the message ("central route to persuasion") or may rely upon simple cues, that are unrelated to the message's content, such as the communicator's prestige or likeableness ("peripheral route of persuasion"). If a central route of persuasion is traveled, the resulting attitude change is a function of the recipients' cognitive responses to the message: The more thoughts come to mind that support the position advocated in the message, the more pronounced the intended attitude change will be. Accordingly, messages that present strong arguments are more effective than messages that present

weak or flawed arguments. The quality of the message affects attitude change less, however, if the peripheral route is traveled, because message elaboration is minimized.

Which "route to persuasion" is more likely to be used depends on recipients' motivation and ability. If the recipient is sufficiently motivated and able to process the content of the message, the "central route" is likely to predominate. The "peripheral route", on the other hand, is likely to be used if motivation and / or ability are low.

This general framework suggests at least five ways in which moods may influence persuasion processes (for a discussion of additional hypotheses see Petty, Cacioppo, & Kasmer, 1988). Each of these possibilities has different implications for recipients' attitude change, their cognitive responses to the message, and their evaluation of and memory for the presented arguments, as outlined below.

#### **Mood as a Peripheral Cue Hypothesis**

Recipients' affective state may itself serve as a peripheral cue if it becomes associated with the attitude object or with the source. This prediction is suggested by learning theory approaches to attitude change (Berkowitz & Knurek, 1969; Razran, 1940; Staats & Staats, 1957, 1958; Staats, Staats, & Crawford, 1962; Zanna, Kiesler, & Pilkonis, 1970), as well as by the hypothesis that affective states may serve informative functions. According to the latter hypothesis (Schwarz & Clore, 1983, 1988), individuals may use their mood at the time of judgment as an informational basis according to a "How do I feel about it? " -

heuristic. That is, they may mistake their pre-existing mood state as a reaction to the message, which may result in greater persuasion under good than under bad mood. Both the learning theory and the "mood-as-information" variant of the hypothesis that moods may serve as peripheral cues imply that mood effects on attitude change should primarily be obtained if a peripheral route to persuasion is traveled, but should be weak if a central route is traveled. Accordingly, they predict a main effect of mood on attitude change but no effect of mood on message related cognitive responses or recall.

#### Change in Criteria Hypothesis

Second, subjects' affective state may influence the criteria that they use to evaluate the quality of the message. Specifically, it seems plausible to suppose that subjects in a bad mood may use harsher criteria to evaluate a persuasive message than subjects in a good mood. If so, subjects in a bad mood should evaluate the message less favorably and should show less attitude change than subjects in a good mood. This would imply a main effect of mood on both attitude change and the relative number of supportive and refutational cognitive responses.

#### Motivational Hypotheses

Third, recipients' affective state may influence their motivation to elaborate the content of the message. Isen and colleagues ( Isen & Levin, 1972; Isen, Means, Patrick, & Nowicki, 1982; Isen, 1984) suggested that individuals in a good mood may

avoid cognitive effort that could interfere with their ability to maintain their pleasant affective state. If so, persons in a good mood may be unlikely to elaborate the message.

The effects of bad moods, however, are more difficult to predict. On the one hand, research on coping with bad moods (e.g., Rosenbaum, 1984) suggests that individuals in a bad mood may be motivated to distract themselves from unpleasant thoughts, and may thus be particularly likely to engage in other activities that are irrelevant to the factors that produced their bad mood. Thus, they may concentrate on the message and elaborate its content. On the other hand, depressed moods have also been found to go along with decreased motivation (e.g., Beck, 1967; Peterson & Seligman, 1984) and may thus decrease the likelihood of message elaboration.

### Cognitive Capacity Hypotheses

Affective states may influence recipients' ability to elaborate the message in various ways. First, the presence of mood related thoughts may decrease subjects' information processing capacity and may thus interfere with their ability to think critically about the message. However, it is unclear whether good moods or bad moods are more likely to have this interference effect. On the one hand, Isen et al. (1982) suggested that good moods are likely to limit cognitive capacity because individuals may think positive thoughts to maintain their good mood. On the other hand, bad moods may be more likely to stimulate a search for explanations of why they exist (Abele, 1985; Schwarz, 1987; Schwarz & Clore, 1983), and this should also

interfere with the performance of other tasks. Moreover, affective states may influence an individual's arousal level, which in turn has been shown to have curvilinear effects on cognitive capacity (Kahneman, 1970). Because this latter possibility pertains to the intensity rather than the valence of affective states, it will not be considered in detail.

In addition, it has been hypothesized that moods may affect individuals' preferred processing style, and that persons in a good mood are more likely to engage in intuitive-holistic processing while persons in a bad mood may prefer sequential-analytic processing (Isen et al., 1982; Kuhl, 1983; Schwarz, 1987). If so, analytic elaborations of the quality of persuasive arguments may be more likely under bad than under good moods.

Thus, the various motivation as well as ability hypotheses predict that recipients' affective states will influence which processing strategy they choose, though the exact nature of their choice remains unclear. Accordingly, these hypotheses predict interaction effects of mood and quality of the presented arguments on both attitude change and cognitive responses.

#### **Mood Congruency Hypothesis**

Finally, recipients' mood states may influence the associations generated during exposure to the message, due to mood congruent accessibility of material in memory (Bower, 1981; Isen, Shalke, Clark, & Karp, 1978). This may result in more positive elaborations and / or more positive reactions to peripheral cues, and accordingly greater persuasion, under good than under bad moods.



### Available Evidence

The currently available evidence bearing on mood effects on persuasion is very limited. Worth and Mackie (1987), found that subjects who were in an experimentally induced good mood were less influenced by the quality of message arguments than were subjects whose mood was not manipulated. Their data suggest that this effect may be mediated by differences in the elaboration of the message, because similar patterns emerged for measures of attitude change and cognitive responses. Thus, their results are compatible with the hypothesis that good moods reduce the likelihood that a central route to persuasion predominates, either due to a lack of motivation or due to a lack of ability.

Unfortunately, the results of the good mood conditions are open to alternative interpretations. Most importantly, good mood was induced by an unexpected pleasant event. Specifically, good mood subjects found a dollar note that they ostensibly had won in a lottery while neutral mood subjects were not exposed to an unexpected event. Unexpected events, however, have been shown to instigate causal reasoning (e.g., Hastie, 1984; Weiner, 1985), and thinking about the pleasant surprise, rather than being in a good mood per se, may have interfered with the elaboration of the message.

In addition, subjects in the Worth and Mackie (1987) study were instructed to imagine a delegate delivering a speech and to evaluate his performance. This instruction may focus subjects' attention on aspects other than the content of the message (e.g., how arguments are organized and presented), and may thus increase

the likelihood of a peripheral processing strategy to begin with. In contrast, if a central processing strategy were adopted, mood effects may be limited or absent. Therefore it seems necessary to test if mood effects are restricted to situations in which recipients' attention is not focused on the content of the message or if they are also obtained when recipients' are explicitly instructed to pay attention to the presented arguments.

Experiment 1 was designed to explore the relative impact of good and bad moods on recipients' processing of persuasive communications that present strong or weak arguments under conditions that either do or do not focus their attention on the content of the message. To induce a good or bad mood, subjects provided a vivid report of a pleasant or an unpleasant life-event. As part of a purportedly independent second study, they were subsequently exposed to a tape recorded communication that presented either strong or weak arguments in favor of an increase in student services fees. Half of the subjects were asked to pay attention to the quality of the information provided. In contrast, the others were told that the study was concerned with language comprehension, focusing their attention on paraverbal aspects of the communication. Finally, subjects' attitudes toward an increase in student services fees, their cognitive responses to the message, their memory for the message's content, and their evaluation of the message were assessed.

According to the hypothesis that one's affective state may itself serve as a peripheral cue, subjects in a good mood should be more persuaded than subjects in a bad mood independently of

the quality of the arguments. Moreover, the impact of mood on attitude change should not be mediated by differences in cognitive responses to the content of the message, according to this hypothesis, because the impact of mood is presumably via the peripheral route of persuasion.

According to the various motivation and ability hypotheses, subjects' mood may determine their processing mode. If so, the obtained attitude change should be mediated by differences in cognitive responses. Thus, strong arguments should be more persuasive, and weak arguments should be less persuasive if a central rather than a peripheral route is traveled, resulting in interaction effects of mood and quality of the arguments. Moreover, the degree of attitude change should be more strongly related to subjects' cognitive responses under central than under peripheral processing strategies. However, the various hypotheses make different predictions as to which mood will elicit which strategy, though the Worth and Mackie (1987) findings suggest that subjects in a good mood may be less likely to use a central processing strategy than subjects in a bad mood.

The mood congruent memory hypothesis, on the other hand, predicts that subjects in a good mood will generate more favorable cognitive responses than subjects in a bad mood. This should occur independently of the quality of the arguments, resulting in more positive attitude change under good than under bad mood in response to both strong and weak arguments. Moreover, the degree of attitude change should be closely related to the number and valence of cognitive responses. This implication allows the mood congruency hypothesis to be distinguished from

the mood as peripheral 'cue hypothesis, that predicts the same pattern for attitude change but not for cognitive responses.

Finally, if subjects in a bad mood use harsher criteria to evaluate the quality of a message, this should be reflected in more negative ratings of the quality of strong as well as of weak messages, which may or may not be independent of the specific cognitive responses generated.

## Experiment 1

### Method

#### Subjects and Design

87 non-depressive female students (BDI scores less than 12, Median = 4; assessed one week before Experiment 1) of the University of Heidelberg, West Germany, with a mean age of 22.3 years, were randomly assigned to the conditions of a 2 (positive vs. negative mood) x 2 (focus of attention on content vs. on language) x 2 (strong vs. weak arguments) - factorial between subjects design or to a nonfactorial control group. N per cell ranged from 9 to 11. Subjects received DM 10 (approx. \$ 5 at the exchange rate of the time) for their collaboration.

#### Procedure

##### Overview

Subjects were run in groups of 3 to 6, and were seated at separate tables to minimize interaction. They were told in advance that they were to participate in two independent studies, first a study on personality, part of which would be the

construction of a life-event inventory. This first study was introduced as the experimenter's diploma thesis. The experimenter indicated that after completion of the first study, he would like subjects to listen to a tape recording and subsequently answer some questions. This ostensible "second study" was introduced as part of a research project at another university in the Heidelberg area that the experimenter was working for. Nothing was mentioned about the specific content or purpose of that second study. Actually, the "first study" contained the mood manipulation, and in the "second study" the persuasive message was presented and dependent variables were assessed.

#### Independent Variables

Happy or sad moods were induced by procedures similar to those employed by Schwarz and Clore (1983) and Strack, Schwarz, and Gschneidinger (1985). Subjects were asked to provide a vivid and detailed written report of a happy or a sad life-event, purportedly to help with the construction of a "Heidelberg Life Event Inventory", that would make use of the reported events. This cover story has been found to successfully disguise the mood induction nature of the task (see Schwarz, 1987, for a discussion). Subjects were given 15 minutes to do so and were encouraged to re-live the event in their mind's eye.

After completion of this task, subjects were thanked and were introduced to the apparent second study, that was purportedly being conducted in collaboration with researchers at another university. Subjects were first given a "Participants Questionnaire", printed on the letterhead of another university,

that assessed their academic major and related general information. Embedded in this questionnaire was a manipulation check that read, "How do you feel right now, at this very moment?" (1 = very bad; 9 = very good).

After completion of the Participants Questionnaire, the second study was either introduced as an experiment on the evaluation of arguments (arguments focus condition), or as an experiment on language comprehension (language focus condition).

Subsequently, subjects listened to a tape recorded communication that announced an increase in student services fees from DM 45 (approximately \$ 22.50) to DM 65 (approximately \$32.50 at the exchange rate of the time) per semester, to take effect with the beginning of the following academic year at subjects' university. This increase was either justified with eleven strong arguments or with eleven weak arguments. Both messages were of approximately equal length. Though the increase of DM 20.00 seems rather small, it should be noted that the last actual fee increase of DM 11.00 in 1982 caused massive student protests and boycott activities.

Pretest data based on 18 subjects indicated a reliable difference in the perceived quality of the arguments,  $M = 6.6$  for the strong and 4.3 for the weak arguments on a 9-point scale,  $t(16) = 2.77$ ,  $p < .02$  (Note 1). No differences in comprehensibility of the message or likeability of the communicator emerged, all  $t$ 's  $< 1$ .

### Dependent Variables

Attitudes. After exposure to the message, subjects reported their approval of an increase in student services fees along a rating scale from 1 (strongly disapprove) to 9 (strongly approve). Subsequently, they were asked to indicate the fee that they would consider appropriate.

Message evaluation and cognitive responses. Following the attitude measures, subjects evaluated the strength of the presented arguments along a scale from 1 (not strong at all) to 9 (very strong). Then, they were instructed to list within three minutes "all thoughts that had come to mind while listening to the tape recording, no matter if they seem important or unimportant to you." Subjects were provided a sheet with ten boxes and were instructed to list only one thought per box. It was pointed out that they were not required to use all boxes.

After completion of this task, they marked each thought as "favorable" (i.e., supporting the suggested increase), "unfavorable" (i.e., opposing an increase), or "neutral" (i.e., unrelated to the issue), following similar procedures used in other studies (Petty, Harkins & Cacioppo, 1981; cf. Petty, Ostrom, & Brock, 1981; Greenwald, 1968).

Memory. Finally, subjects' memory for the presented arguments was assessed. They were given a surprise recall test and wrote down all arguments they could remember. Subsequently, they received a recognition test and indicated which of 30 arguments they had actually heard. The recognition list consisted of the eleven strong and eleven weak arguments plus eight additional statements. Thus, there were eleven previously

presented arguments and 19 foils for each subject. Subjects were given 3 minutes for each of these tasks.

#### Control Group

Subjects of the non-factorial control group were neither exposed to a mood manipulation nor to a persuasive communication. They were only informed of the intended increase in student services fees and reported their attitudes toward this increase. No other dependent variables were assessed.

After completion of the above procedures, all subjects were thoroughly debriefed and dismissed.

### Results

#### Mood

As expected, subjects who had to describe a happy event reported being in a better mood ( $\bar{M} = 7.0$ ) than subjects who described a sad event ( $\bar{M} = 6.1$ ),  $F(1,70) = 5.01$ ,  $p < .03$ . This indicates that the mood manipulation was successful. No other significant effects emerged, all  $F$ 's  $< 1$ . Thus, the impact of the mood manipulation was not dependent on subjects' focus of attention or the strength of the arguments they heard.

#### Attitude Change

Both attitude questions were analyzed by a 2(mood) x 2(focus) x 2(quality of arguments) MANOVA (all multivariate  $F$ -ratios are based on Wilk's lambda). Because univariate analyses indicated the same results for each of the dependent variables,



only the multivariate tests are reported. The means of both variables are shown in Table 1 as a function of the experimental manipulations.

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Table 1 about here

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Subjects who were exposed to strong arguments reported more positive attitudes toward an increase in student services fees than subjects who were exposed to weak arguments, multivariate  $F(2,58) = 5.65$ ,  $p < .01$  (Note 2). This main effect was qualified by a significant interaction of argument quality and mood, multivariate  $F(2,58) = 5.26$ ,  $p < .01$ .

As shown in Figure 1, only subjects in a bad mood but not subjects in a good mood were differentially affected by strong and weak arguments. Specifically, subjects in a bad mood reported a higher approval of the intended increase, and suggested a higher fee as appropriate, when they were exposed to strong rather than to weak arguments; multivariate  $F(2, 62) = 8.58$ ,  $p < .001$ , for the simple main effect. Subjects in a good mood, on the other hand, were equally affected by strong and weak arguments, multivariate  $F < 1$ .

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Figure 1 about here

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In addition, a significant interaction of argument quality and focus of attention emerged, multivariate  $F(2,58) = 4.66$ ,  $p < .02$ , that was independent of the mood manipulation. As shown in Figure 2, strong arguments were more influential than weak arguments when subjects were instructed to focus on the quality of the presented information; multivariate  $F(2,62) = 8.17$ ,  $p < .001$  for the simple main effect. When subjects were given a language comprehension set, on the other hand, argument quality did not exert a significant influence, multivariate  $F < 1$ .

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Figure 2 about here

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Finally, the means of all experimental conditions were compared to the mean of the nonfactorial control group by planned comparisons. The results of these tests, shown by subscripts in Table 1, indicate that strong but not weak arguments resulted in significant attitude change when subjects were in a bad mood, independent of the focus of attention manipulation. Subjects in a good mood, on the other hand, were influenced by strong arguments but not by weak arguments when they were explicitly instructed to evaluate the quality of the arguments. Without this explicit instruction, good mood subjects were equally influenced by strong as well as by weak arguments, though this pattern did not result in a significant triple interaction. Thus, being in a bad mood seemed functionally equivalent to being instructed to focus on the quality of the presented arguments, and either of these manipulations resulted in a differential impact of strong and

weak arguments.

Let us now consider the implications of these findings for the previously discussed hypotheses. Most importantly, the obtained interaction of mood and argument quality is incompatible with hypotheses that predict a main effect of mood, which was not obtained. Thus, it seems unlikely that subjects based their evaluation of the issue on their affective state at the time of judgment, or that the impact of mood was mediated by more favorable associations under good than under bad mood. This rules out the "mood-as-peripheral-cue" - and the "mood congruency"-hypotheses as viable explanations for the obtained results. Obviously, the failure to obtain support for these hypotheses does not imply that the respective processes may never influence the impact of persuasive messages. For example, it is conceivable that mood-as-peripheral-cue effects may be obtained if one's affective state seems more relevant to the content of the message and/or if message elaboration occurs on a more superficial level. The current results, however, are incompatible with these hypotheses.

Rather, the findings presented so far suggest that subjects in a bad mood were more likely to elaborate the content of the message than subjects in a good mood, resulting in a greater impact of strong rather than weak arguments under bad mood. If so, subjects' cognitive responses should parallel the pattern of the attitude data.

Alternatively, subjects in a bad mood may have used harsher criteria to evaluate the quality of the message than subjects in a good mood. We will now turn to data that bear on these

possibilities.

### Perceived Argument Quality

As expected, subjects rated the strong arguments as stronger ( $\bar{M} = 6.0$ ) than the weak arguments ( $\bar{M} = 3.5$ ),  $F(1,70) = 27.48$ ,  $p < .0005$ . However, their evaluation of the arguments was neither affected by their mood nor by the induced focus of attention, all  $F's < 1$ . Thus, the hypothesis that subjects in a good mood may have used more lenient criteria to evaluate the quality of the message received no support.

### Cognitive Responses

The average number of thoughts that subjects reported in the thought listing task ( $\bar{M} = 5.6$ ,  $s = 1.89$ ) was not significantly affected by the experimental manipulations, all  $p > .25$ .

However, separate analyses of the proportions of favorable and unfavorable thoughts, shown in Table 2, revealed systematic

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Table 2 about here

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differences. Overall, subjects reported a higher proportion of favorable thoughts ( $\bar{M} = .25$ ) and a lower proportion of unfavorable thoughts ( $\bar{M} = .43$ ) in response to strong rather than weak arguments ( $\bar{M}'s = .14$  and  $.53$ , resp.),  $F's(1,70) = 7.50$  and  $3.30$ ,  $p's < .01$  and  $.08$ , resp. Again, this conclusion is qualified by significant interactions of argument quality and mood,  $F's(1,70) = 8.65$  and  $2.76$ ,  $p's < .005$  and  $.11$ , for proportions of favorable and unfavorable thoughts, resp.

As shown in Figure 3, the effect of argument quality is exclusively due to the cognitive responses of subjects in a bad mood. These subjects generated a higher proportion of favorable and a lower proportion of unfavorable thoughts in response to the strong arguments than in response to the weak arguments,  $t's(70) = 3.96$  and  $2.43$ ,  $p's < .0005$  and  $.003$ , resp., reflecting a high degree of systematic elaboration of the message. The cognitive responses generated by subjects in a good mood, on the other hand, did not vary as a function of message quality,  $t's < 1$ , suggesting that the occurrence of favorable and unfavorable thoughts under good mood was independent of the content of the message.

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Figure 3 about here

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No other significant effects emerged either for the proportion of favorable or for the proportion of unfavorable thoughts, all  $F < 1$ . Nor did the proportion of neutral thoughts show any impact of the experimental manipulations.

In combination with the attitude data, these findings clearly support the hypothesis that the impact of mood on persuasion is mediated by its impact on the choice of processing strategies. While subjects in a bad mood elaborated the content of the message according to a central route of persuasion, subjects in a good mood did not do so.

#### Recall and Recognition Data

Subjects' free recall data were categorized by two

independent judges as either "correct" or "false". Judges agreed on 97% of the individual listings, and the disagreements were resolved by discussion. The mean number of recalled arguments was 6.7 (out of 11), and was not affected by the experimental manipulations, all  $F < 1$ .

To analyze subjects' recognition data, the difference between hits and false alarms was computed (Murdock, 1982). With 11 target items and 19 foils, the difference score could range from -19 to + 11. The mean difference score over all conditions was 8.5, and subjects showed a better recognition of weak ( $M = 9.0$ ) than strong arguments ( $M = 8.0$ ),  $F(1,70) = 5.83$ ,  $p < .02$ . No other effects emerged.

In summary, there is no evidence that would suggest that subjects' mood or focus of attention affected their memory for the arguments.

## Discussion

In combination, the findings of Experiment 1 suggest that recipients' moods affect their processing modes. Specifically, subjects in a good mood seem less likely to elaborate the presented arguments than subjects in a bad mood. Accordingly, subjects in a bad mood generated a higher proportion of favorable cognitive responses, and showed more attitude change, when exposed to a message that presented strong arguments than when exposed to a message that presented weak arguments. Subjects in a good mood, on the other hand, were not differentially influenced by strong or weak arguments in either their cognitive responses or their attitude change, unless they were explicitly instructed

to focus on the quality of the message. This pattern of findings suggests that subjects in a bad mood proceeded via a central processing route, which was only used by subjects in a good mood if they were explicitly instructed to do so.

#### Additional Comparisons

Although the presented data revealed a significant difference between the reported mood of good vs. bad mood subjects, subjects assigned to the bad mood conditions still scored above the scale midpoint. One might therefore argue that these subjects were in a "neutral" rather than in a pronounced bad mood. Unfortunately, however, it is rather difficult to determine which scale value reflects a "neutral" as opposed to a "positive" or a "negative" mood state. This difficulty is due to conceptual problems associated with the idea of a "neutral" mood.

Frequently, researchers use the term "neutral mood" to refer to subjects' non-manipulated mood state. In practice, this procedure implies that the exact nature of the presumed "neutral" mood is determined by extraneous variables such as the weather (e.g., Cunningham, 1979; Schwarz & Clore, 1983, Exp.2) or other salient events of the day (e.g., Schwarz, Strack, Kommer & Wagner, 1987). Accordingly, the outcome of experimental comparisons that are based on this logic is a function of fortuitous influences that determine the mood state of subjects who are assigned to the no-manipulation conditions.

Alternatively, one might define a "neutral" mood as the mood state that is reflected by values in the middle range of a mood scale. It is well known, however, that non-manipulated moods tend

to be somewhat elevated. In fact, most of the time, most people report being in a good mood (Bless & Schwarz, 1984; Matlin & Stang, 1978; Sommers, 1984). Accordingly, values in the middle range of a mood scale may already reflect the subjective experience of a negative deviation from one's usual mood, and it may be difficult to induce more pronounced bad moods within the ethical constraints of experimental research.

In summary, determining "how bad" subjects' mood in Experiment 1 really was, turns out to be difficult. To avoid some of these conceptual problems, the data from the previously presented bad mood conditions will be compared with concurrently collected data from depressed individuals who are habitually in a negative mood state (Beck, 1967). Specifically, only subjects who scored less or equal 12 on Beck's Depression Inventory were run in the reported experimental conditions, and were assigned to the various mood manipulations. Subjects who scored above 12 on the BDI were not exposed to a mood manipulation, thus providing a control group that is habitually in a bad mood. Due to the limited number of depressive subjects, only the previously described language focus instructions could be replicated.

The BDI scores of the depressive subjects were significantly greater ( $M = 18.9$ ) than those of the non-depressive subjects ( $M = 5.8$ ),  $F(1,34) = 70.40$ ,  $p < .0005$ , all other  $F$ 's  $< 1$ . The results are summarized in Table 3. They suggest that subjects in a naturally depressed mood as well as subjects in an experimentally induced bad mood, engaged in systematic message elaboration. Most importantly, the source of subjects' bad mood did not result in any significant main effect or interaction on the measures of



attitude change, argument rating, or cognitive response, all p's > 20.

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Table 3 about here

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In combination, the findings from depressed subjects provide further support for the hypothesis that persons who are in a bad mood, either habitually or due to situational influences, tend to elaborate persuasive messages systematically. Most importantly, the absence of any significant differences between naturally depressed subjects and non-depressed subjects in an induced bad mood suggests that the bad mood induction was successful and renders it unlikely that a stronger ( and ethically acceptable) mood induction may produce dramatic changes in the results.

In summary, the findings reported so far suggest that the impact of moods on persuasion is mediated by their impact on subjects' processing mode. However, the available evidence is purely correlational. Therefore, an experimental test of the hypothesized mediating role of cognitive responses is called for.

### Experiment 2

If the obtained interaction of mood and message quality on attitude change is mediated by the impact of moods on subjects' cognitive responses, this interaction should be affected by other variables that are known to influence message elaboration. According to the elaboration likelihood model, the amount of

message elaboration is determined by the recipient's motivation and ability to process the message, and variables like distraction, personal relevance, repetition, prior knowledge etc. can decrease or increase message elaboration (Petty & Cacioppo, 1986 a, b). Most importantly, distraction has been shown to interfere with the systematic processing of a message. Distracted subjects are less likely to generate favorable cognitive responses in reaction to strong arguments or negative cognitive responses in reaction to weak arguments. As a consequence, distraction reduces the differential impact of strong and weak messages (cf. Petty & Brock, 1981).

Accordingly, one can test the hypothesis that the impact of mood on persuasion is mediated by its impact on subjects' cognitive responses by introducing a distraction manipulation. If subjects in a bad mood are likely to elaborate the message, while subjects in a good mood are less likely to do so, introducing a distraction manipulation should eliminate the mood effects obtained in Experiment 1. To test this hypothesis, subjects' in a good or bad mood were exposed to strong or weak arguments and were or were not distracted during exposure.

## Method

### Subjects and Design

75 female students of the University of Heidelberg, with a mean age of 22.4 years, were randomly assigned to the conditions of a 2 (positive vs. negative mood) x 2 (strong vs. weak arguments) x 2 (no distraction vs. distraction) - factorial design. N per cell ranged from 8 to 11. Subjects received DM 8

(approx. \$ 4) for their collaboration.

### Procedure

Except for the distraction conditions described below, the procedure, the independent, and the dependent variables were identical to the language focus condition of Experiment 1. However, no free recall and recognition data were collected, given that these variables showed no effect in Experiment 1.

Distraction Manipulation. Subjects assigned to the distraction conditions were presented eleven slides with simple computation tasks during exposure to the tape. They had to solve these tasks, e.g.,  $5 + 4 - 2 = ?$ , and write down the answer on a solution sheet. Following procedures used by Zimbardo et al. (1970), subjects were told that their main task was to listen to the tape.

The pace of the slide presentation, of 11.3 seconds per task, was pretested to ensure that the computation tasks required a certain degree of cognitive capacity, but that subjects were still able to listen to the tape. 36 of the 38 subjects assigned to the distraction conditions solved all tasks correctly, and two subjects provided one incorrect solution.

### Results

#### Mood

Subjects who had to describe a positive life-event reported being in a better mood ( $M = 6.3$ ) than subjects who had to describe a negative life-event ( $M = 5.4$ ),  $F(1,67) = 4.18$ ,  $p < .04$ ; all other  $F$ 's  $< 1$ . Thus, as in Experiment 1, the mood

manipulation was successful and did not interact with other independent variables.

#### Attitude change

As in Experiment 1, the influence of the persuasive communication was inferred from the recipients' approval of the suggested fee increase and the amount of increase they recommended, and multivariate analyses were computed. Both indices are shown in Table 4 as a function of strength of arguments, subjects' induced mood, and distraction.

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Table 4 about here

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A specified triple interaction was predicted for this experiment, and this prediction was tested by a focused multivariate a priori contrast rather than an omnibus F-test, following suggestions by Rosenthal & Rosnow (1985). The contrast weights are given in the top rows of Table 4. The result of this analysis confirms the predicted triple interaction,  $F(2,61) = 3.02$ ,  $p < .06$ . Diagnosis of this interaction indicates, that the quality of the message affected non-distracted subjects when they were in a bad mood,  $F(2,61) = 4.21$ ,  $p < .02$ , but not when they were in a good mood,  $F < 1$ , resulting in a nonsignificant simple interaction of mood and argument quality,  $F(2,61) = 2.28$ ,  $p < .12$ . Additional univariate tests revealed a significant simple interaction for the "approval" measure,  $F(1,67) = 4.29$ ,  $p < .05$ , but not for the "amount of money" measure,  $F(1,62) = 2.14$ ,  $p < .12$ . Overall, this pattern of results replicates the findings of

### Experiment 1.

Distracted subjects, on the other hand, were not differentially affected by strong or weak arguments under either good or bad mood conditions, both  $F$ 's  $< 1$ . Accordingly, no simple interaction of mood and argument quality emerged under distraction conditions,  $F < 1$ .

In summary, either being in a good mood or being distracted eliminated the advantage of strong over weak arguments. Moreover, no effect of mood on attitude change was obtained under distraction conditions, as suggested by the hypothesis that the impact of mood on attitude change is mediated by its impact on subjects' cognitive responses.

### Perceived quality

As expected, subjects rated strong arguments as stronger ( $M = 5.58$ ) than weak arguments ( $M = 3.86$ ),  $F(1,67) = 11.75$ ,  $p < .001$ . The evaluation of the arguments was neither affected by mood, nor by the distraction tasks, all  $p$ 's  $> .10$ . This indicates, that all subjects, including the distracted ones, recognized the difference in argument quality. Thus, the pattern of the attitude results can not be explained by differential evaluations of the quality of the arguments.

### Cognitive responses

Overall, non-distracted subjects reported more thoughts in the thought listing task ( $M = 5.24$ ) than distracted subjects ( $M = 4.83$ ),  $F(1,67) = 5.02$ ,  $p < .03$ , indicating that the distraction manipulation was successful in reducing the total number of

cognitive responses. No other significant effects on the total number of reported thoughts emerged.

Separate analyses of the proportion of favorable and unfavorable thoughts, presented in Table 5, indicated that non-distracted subjects generated a smaller proportion of favorable thoughts ( $\bar{M} = .17$ ) and a higher proportion of unfavorable thoughts ( $\bar{M} = .43$ ) in response to the counterattitudinal message than distracted subjects ( $\bar{M}$ 's = .23 and .31, resp.),  $F$ 's(1,67) = 3.02 and 4.10,  $p$ 's < .09 and .05, respectively. This finding further reflects the success of the distraction manipulation.

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Table 5 about here

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In addition, main effects of argument quality on both thought measures emerged. Subjects who were exposed to strong arguments tended to report a greater proportion of favorable ( $\bar{M} = .25$ ), and reported a smaller proportion of unfavorable thoughts ( $\bar{M} = .29$ ), than subjects who were exposed to weak arguments ( $\bar{M}$ 's = .18 and .44, resp.),  $F$ 's(1,67) = 2.06 and 6.37,  $p$ 's < .16 and .02, respectively. As in Experiment 1, these main effects were qualified by interaction effects of mood and argument quality that parallel the attitude change data,  $F$ 's(1,67) = 3.15 and 3.88,  $p$ 's < .08 and .06, for the proportion of favorable and unfavorable thoughts, respectively.

Specifically, subjects in a bad mood reported a higher proportion of favorable ( $\bar{M} = .31$ ) and a smaller proportion of

unfavorable thoughts ( $\bar{M} = .26$ ) after listening to strong arguments than after listening to weak arguments ( $\bar{M}'s = .26$  and  $.53$ );  $F's(1,67) = 5.45$  and  $10.16$ ,  $p's < .05$  and  $.01$ , respectively, for the simple main effects. In contrast, subjects in a good mood were not affected by argument quality, neither in the proportion of favorable ( $\bar{M}'s = .27$  vs.  $.26$ , for strong and weak arguments, resp.) nor in the proportion of unfavorable thoughts ( $\bar{M}'s = .33$  vs.  $.36$ ) that they reported,  $F's(1,67) < 1$  and  $1.74$ , n.s., respectively, for the simple main effects.

Separate analyses under each distraction condition suggest that the interaction effects of mood and argument quality are primarily due to the behavior of non-distracted subjects. Specifically, non-distracted subjects in a bad mood reported a higher proportion of favorable ( $\bar{M} = .35$ ) and a smaller proportion of unfavorable thoughts ( $\bar{M} = .29$ ) in response to the strong rather than the weak arguments ( $\bar{M}'s = .07$  and  $.60$ , resp.),  $t's(67) = 2.84$  and  $-2.62$ ,  $p's < .01$  and  $.02$ , respectively. This pattern was less pronounced when bad mood subjects were distracted,  $\bar{M}'s = .27$  and  $.23$ ,  $t < 1$ , for favorable thoughts in response to strong and weak arguments, and  $\bar{M}'s = .23$  and  $.45$ ,  $t(67) = -1.86$ ,  $p < .07$  for unfavorable thoughts.

The cognitive responses reported by subjects in a good mood, on the other hand, were not affected by the distraction manipulation, all  $t's < 1$ , again paralleling the attitude change data. Finally, a contrast analysis was computed to test the significance of the predicted triple interaction, paralleling the analysis of the attitude change data. This analysis confirmed the statistical reliability of the described findings for the

proportion of favorable thoughts;  $t(67) = -2.41$ ,  $p < .02$ , but not for the proportion of unfavorable thoughts,  $p > .10$ .

In summary, either being distracted or being in a good mood interfered with subjects' elaboration of the message, as predicted by the hypothesis that the effects of mood on attitude change are mediated by subjects' cognitive responses.

### General Discussion

#### Mood and Message Elaboration

In combination, the findings of the reported experiments indicate that mood affects recipients' processing modes. Specifically, subjects in a good mood seem less likely to elaborate the presented arguments than subjects in a bad mood. Accordingly, subjects in a bad mood generated a higher proportion of favorable cognitive responses and a smaller proportion of unfavorable cognitive responses, and showed more attitude change, when exposed to a message that presented strong arguments than when exposed to a message that presented weak arguments. Subjects in a good mood, on the other hand, were not differentially influenced by strong or weak arguments in either their cognitive responses or their attitude change.

Moreover, Experiment 2 provided direct evidence for the mediating role of recipients' cognitive responses: When subjects in a bad mood were distracted from processing the content of the message, their increased responsiveness to strong rather than weak arguments was eliminated, indicating that being in a bad mood is associated with systematic message elaboration. Subjects in a good mood, on the other hand, were not affected by a



distracting task, suggesting that they did not engage in message elaboration to begin with. Thus, either being distracted or being in a good mood reduced recipients' elaboration of the message, suggesting that the two are functionally equivalent.

As a mirror image to this finding, Experiment 1 also demonstrated that subjects in a good mood did elaborate the message if explicitly instructed to do so. Subjects in bad mood, on the other hand, also elaborated the message in absence of explicit instructions. Thus, either being instructed to focus on the content of the message or being in a bad mood resulted in message elaboration, again suggesting that the two are functionally equivalent.

The findings provided by the current studies are consistent with the results reported by Worth and Mackie (1987), who found differential cognitive responses and differential attitude change in response to strong and weak arguments under non-manipulated moods but not under good moods. Moreover, the differences between the present study and the Worth and Mackie study suggest that the impact of good mood is rather robust. In the Worth and Mackie study, good mood was induced by an unexpected positive event and we speculated that this unexpected event may have interfered with the elaboration of the message. In the present study, good and bad moods were induced through the recall of positive or negative experiences and one may speculate that recalling negative experiences is more likely to trigger rumination, which may interfere with other cognitive tasks, than recalling positive experiences (Abele, 1985; Schwarz, 1987). Nonetheless, subjects in a good mood again showed less elaboration of the message than

subjects in a bad mood. Thus, it seems safe to conclude that good moods reduce the likelihood of message elaboration.

Whether bad moods increase the likelihood of message elaboration is difficult to evaluate on the basis of the available data. However, findings in other domains suggest that individuals in a bad mood are more likely to use an analytic and piecemeal processing strategy than subjects in a non-manipulated mood, while subjects in a good mood are least likely to do so. Specifically, subjects in an induced bad mood use covariation information more accurately than subjects in a non-manipulated mood, whereas subjects in an induced good mood use it less accurately (Schwarz, Kommer, & Lessle, 1987). These findings, which parallel research on depressive realism (see Ruehlman et al., 1985), as well as the results of the depressed subjects reported as part of Experiment 1, suggest a close relationship between mood state and processing strategy: It seems that the likelihood of effortful analytic processing decreases as moods become more positive. If so, individuals in a bad mood may be more likely to elaborate a message than individuals in a non-manipulated mood, in particular because non-manipulated moods are usually of a somewhat elevated quality, as discussed above (Bless & Schwarz, 1984; Matlin & Stang, 1978; Sommers, 1984). Clearly, future research should attempt to induce good and bad moods at several levels of extremity.

#### What Mediates the Impact of Mood on Processing Strategy?

What mediates the impact of mood states on individuals' processing strategies is currently unclear. At least three

possibilities warrant further investigation.

First, as suggested by Isen and colleagues (1982), individuals may be motivated to maintain a good mood and to get out of a bad mood. Therefore, individuals in a good mood may avoid cognitive effort, because effortful reasoning may interfere with their positive mood state. By the same token, individuals in a bad mood may want to distract themselves from negative thoughts, and may thus be particularly likely to engage in other tasks.

Second, both good or bad moods may limit cognitive capacity. On the one hand, persons in a good mood may elaborate their pleasant thoughts. On the other hand, persons in a bad mood may analyze the causes of their negative feelings and what to do about them. Thus, both good and bad moods may instigate cognitive activity that interferes with other tasks, and it will be an important task for future research to determine the conditions under which each mood state limits cognitive capacity.

Third, the choice of processing strategies may reflect a highly adaptive automatic process. Specifically, bad moods are usually associated with situations that a person wants to avoid whereas good moods are associated with situations a person wants to approach. Thus, good and bad moods are closely linked with approach and avoidance motivations, respectively. Note, however, that approach and avoidance situations require differentially elaborate processing strategies. When we want to obtain a certain outcome, it is usually sufficient to determine one of the potentially many possible ways that lead to the desired outcome. When we want to avoid a certain outcome, on the other hand, we

need to determine all possible causal links that may produce this outcome in order to avoid it. Thus, approach and avoidance situations show a natural asymmetry in the degree of analytic reasoning that they require (see Lewicka, 1986 for a related argument). It is therefore conceivable that bad moods, which are usually associated with an avoidance motivation, automatically trigger a more elaborate and analytic processing style than good moods, which are usually associated with approach motivations.

None of these processes is mutually exclusive and it will be an important, albeit difficult, task to isolate their relative contributions. This task will be further complicated by the possibility that the cognitive and motivational effects of moods may interact with the nature of the processing tasks. For example, recent findings by Isen, Daubman, & Gorgolione (1986) suggest that positive moods might improve performance on creative tasks, which require unusual associative links to be made. Thus, if elated or depressed moods facilitate or inhibit cognitive performance is likely to depend on the nature of the task.

#### Implications for the Elaboration Likelihood Model

The current findings in combination with the results reported by Worth and Mackie (1987) indicate that the impact of mood on persuasion is mediated by its impact on the elaboration of message content, rather than by any of the other processes we speculated about.

Specifically, we found no evidence that recipients' affective states served as peripheral cues which would imply mood effects on attitude change that are independent of message

elaboration. Given the evidence that individuals consult their feelings at the time of judgment to simplify otherwise difficult judgmental tasks (Schwarz, in press; Schwarz & Clore, 1988; Schwarz, Strack, Kommer, & Wagner, 1987), such peripheral cue effects should have been particularly likely to emerge under the distraction conditions of Experiment 2. This was not the case. Nor did recipients in a bad mood seem to use harsher criteria in evaluating the quality of the message, as is reflected in the lack of mood effects on ratings of message quality. Neither do the current data support predictions derived from models of mood congruent memory (Bower, 1981; Clark & Isen, 1982). According to these models, recipients who are in a good mood may generate more favorable associations in response to the message than recipients who are in a bad mood, resulting in a main effect of mood in the cognitive response as well as the attitude change data. A main effect of mood, however, was not obtained. Rather, mood showed a significant interaction with message quality and the highest proportion of favorable responses was generated by subjects who were in a bad mood and received strong arguments.

In summary, then, recipients' affective state seems to mediate the impact of a persuasive message by affecting the elaboration of the message's content.

#### What Mediates Focus of Attention Effects?

Finally, we will turn to a somewhat puzzling aspect of the results of Experiment 1. Both being in a bad mood and being instructed to focus on the content of the message resulted in higher attitude change in response to strong arguments. However,

only being in a bad mood increased subjects' elaboration of the content of the message as reflected in the cognitive response data. Focusing attention on the message's content, on the other hand, did not affect subjects' cognitive responses despite its impact on attitude change, nor did it affect subjects' ratings of the quality of the message or their memory for the presented arguments. This suggests that its impact on attitude change did not occur via the central route of persuasion as the elaboration likelihood model would suggest.

To account for these findings, one may speculate that the instruction to focus on the quality of the message prompted subjects' to consider their overall evaluation of the message when they reported their attitude. In line with this assumption, subjects' ratings of the message's quality were more strongly correlated with their reported attitude when they were instructed to focus on the content of the message,  $r = .91$ , than when they were not,  $r = .76$ , though this difference did not reach significance,  $z = 1.0$ ,  $p < .08$ , one-tailed. This suggests that the quality of a message may affect its impact independent of message elaboration if subjects use their global evaluation of the message as a cue.

#### Mood and Persuasion: Some Advice

In conclusion, putting recipients in a good mood when we want to influence them may not always be a good idea. Specifically, when we have strong arguments to present in favor of our case, recipients' good mood may reduce their impact by interfering with recipients' elaboration of the message. This

interference is particularly undesirable because attitude change via a central route of persuasion has been found to be more stable than attitude change via a peripheral route (cf. Petty & Cacioppo, 1986 a,b). Thus, strong arguments are likely to be more persuasive when we deliver them to an audience that is in a neutral or slightly depressed mood.

Weak arguments, on the other hand, are more effective when recipients do not elaborate them. Therefore, if we have nothing compelling to say, putting the audience in a good mood may be a smart choice -- much as many advertisers seem to have known for quite a while.

## Authors' Note

A previous report of these findings was presented at the meetings of the Person Memory Interest Group in Evanston, IL, October 1985, and at the 2nd Fachtagung Sozialpsychologie, Erlangen, FRG, April 1986. Experiment 1 was conducted by Herbert Bless and Gerd Bohner as part of their joint diploma thesis at the University of Heidelberg, and Experiment 2 was conducted by Herbert Bless as part of his dissertation, both under the direction of Norbert Schwarz. The reported research was supported by grants Schw 278/2 and Str 264/2 from the Deutsche Forschungsgemeinschaft to N. Schwarz and F. Strack, and preparation of the paper was partially supported by a Feodor Lynen Fellowship from the Alexander von Humboldt Foundation to N. Schwarz. We want to thank Tom Ostrom for stimulating discussions during an early phase of this project, as well as Bob Wyer and two anonymous reviewers for their thoughtful responses to a previous draft. Correspondence should be addressed to Norbert Schwarz, ZUMA, P.O. Box 59 69, D-6800 Mannheim, W. Germany.



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## Footnotes

Note 1. While the results of "argument quality" ratings were used in the present studies as criteria for defining "strong" and "weak" versions of the message, we acknowledge that this procedure is less than optimal. From the perspective of cognitive response theory, a pretest based on subjects' cognitive responses would be preferable. In that case, a message that elicits primarily favorable thoughts would be defined as "strong", whereas one elicits primarily counterarguments would be defined as "weak". Data from the following experiments will confirm, however, that the present set of arguments meets these criteria.

Note 2. Eleven subjects did not indicate which fee they would consider appropriate. These refusals were independent of experimental conditions,  $\chi^2(7) = 4.7$ , n.s.

Note 3. Five subjects did not indicate which fee they would consider appropriate. These refusals were independent of experimental conditions,  $\chi^2(7) = 8.5$ , n.s.

Table 1

Attitude Change as a Function of Mood, Message Quality, and Focus of Attention

	Focus of attention			
	on arguments		on language	
	Mood		Mood	
	good	bad	good	bad
Approval				
strong arguments	5.4 *	7.3 *	4.6 *	5.4 *
weak arguments	3.0	3.0	4.7 *	3.0
Recommended Fee				
strong arguments	53.98 *	59.29 *	51.11	54.00 *
weak arguments	47.78	45.63	56.43 *	48.75
Control group			Approval: 3.3	
			Money : 48.44	

Note. Means with an asterisk differ significantly from the control group at  $p < .05$ . The recommended fee is given in DM, the possible range of values for approval is 1 (= "strongly disapprove ") to 9 (= "strongly approve").



Table 2

Mean Proportions of Favorable and Unfavorable Thoughts

	Focus of attention			
	on arguments		on language	
	Mood		Mood	
	good	bad	good	bad
Favorable Thoughts				
strong arguments	.19	.37	.14	.31
weak arguments	.19	.15	.16	.06
Unfavorable Thoughts				
strong arguments	.48	.33	.55	.35
weak arguments	.54	.49	.50	.59

Table 3

Attitude change, Perceived Message Quality, and Mean Proportions of Favorable and Unfavorable Thoughts as a Function of Message Quality and Type of Negative Mood

Variable	Bad Mood			
	Exper. induced		Depressive Subjects	
	Arguments		Arguments	
	strong	weak	strong	weak
Approval	5.4	3.0	6.2	3.9
Recommended Fee	54.00	48.75	55.56	52.50
Perceived Quality	6.2	3.4	6.0	3.6
Mean Proportion of Favorable Thoughts	.31	.06	.32	.14
Mean Proportion of Unfavorable Thoughts	.35	.59	.49	.45

Note. The recommended Fee is given in DM, the possible range of values for approval and perceived quality is 1 (= "strongly disapprove" resp. "not strong at all") to 9 ("strongly approve" resp. "very strong").

Table 4

Attitude Change as Function of Mood, Message Quality, and Distraction

	Distraction Task			
	no		yes	
	Mood		Mood	
	good	bad	good	bad
Contrast Weights				
strong arguments	1	-3	1	1
weak arguments	-1	3	-1	-1
Approval				
strong arguments	4.3	5.3	4.7	4.0
weak arguments	4.2	2.6	4.0	4.1
Recommended Fee				
strong arguments	51.00	52.55	53.75	53.10
weak arguments	51.22	46.43	52.30	50.00

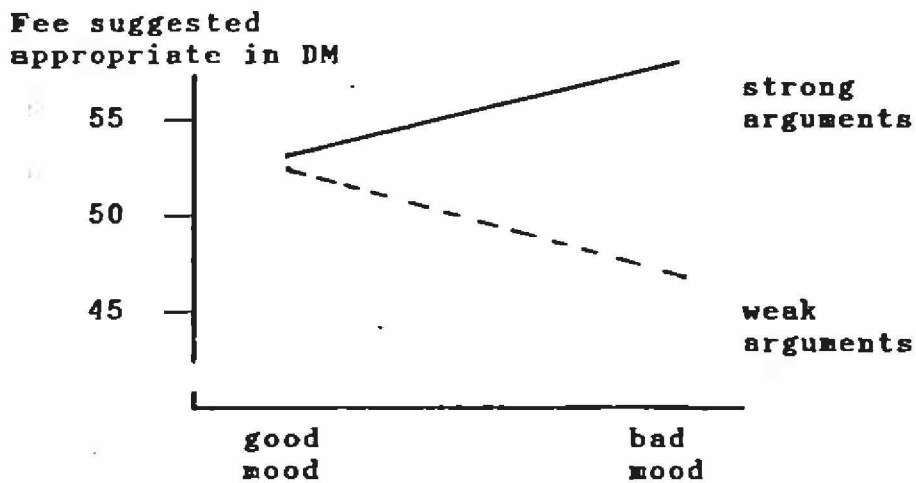
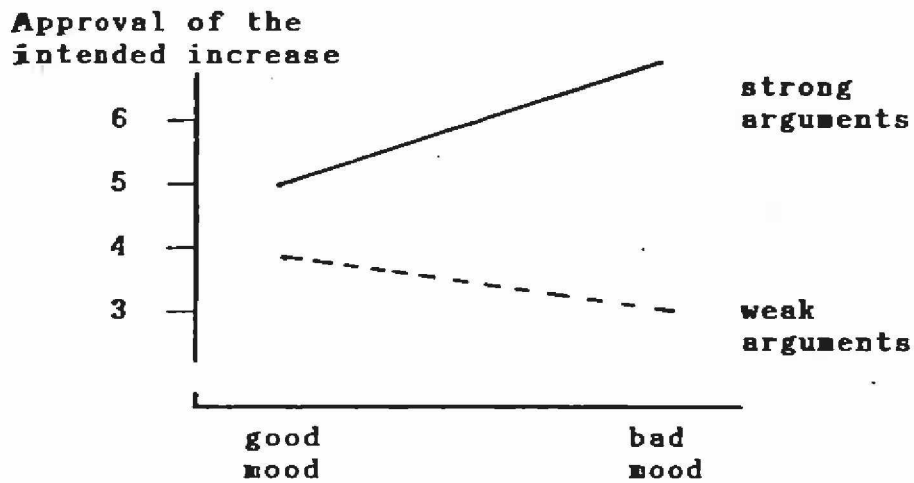
Note. The recommended Fee is given in DM, the possible range of values for approval is 1 (= "strongly disapprove") to 9 (= "strongly approve").

Table 5

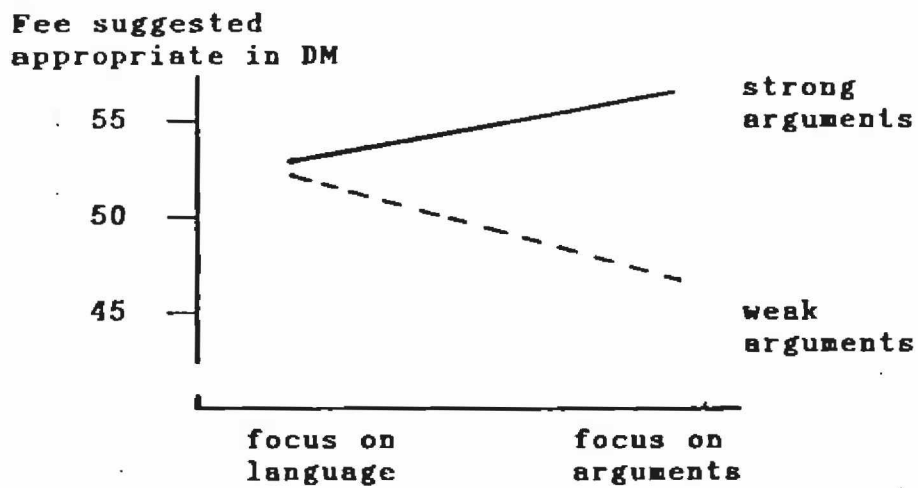
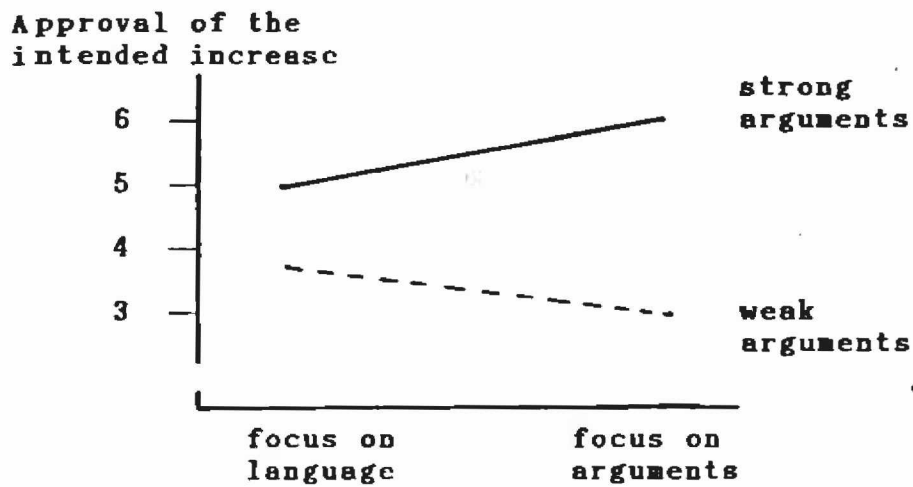
Mean Proportions of Favorable and Unfavorable Thoughts

	Distraction Task			
	no		yes	
	Mood		Mood	
	good	bad	good	bad
Favorable Thoughts				
strong arguments	.15	.35	.25	.27
weak arguments	.14	.07	.29	.23
Unfavorable Thoughts				
strong arguments	.39	.29	.26	.23
weak arguments	.41	.60	.31	.45

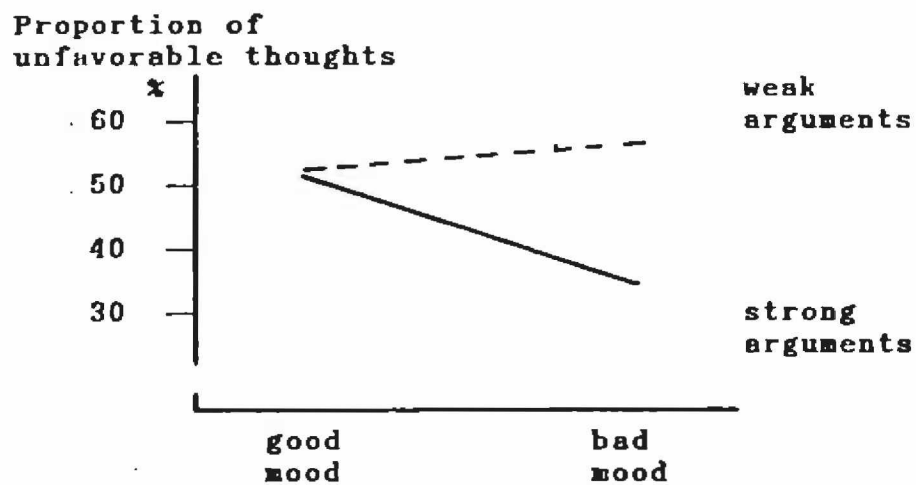
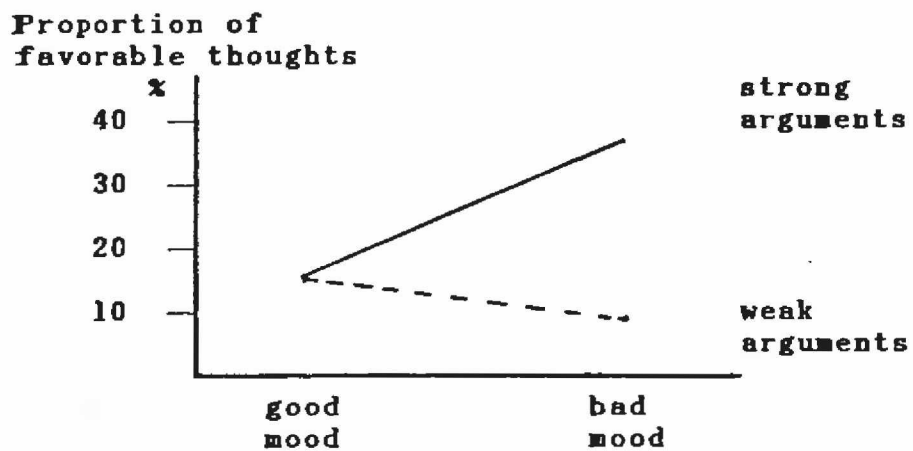
**Figure 1: Reported Attitudes as a Function of Mood and the Quality of Arguments**



**Figure 2: Reported Attitudes as a Function of Quality of Arguments and the Focus of Attention**



**Figure 3: Cognitive Responses as a Function of Mood and the Quality of Arguments**



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